

## ***Chapter Four***

### ***Development Alternatives***



## ***Taylor Municipal Airport***

### ***Airport Master Plan***

# Chapter Four

## Development Alternatives



### INTRODUCTION

The preceding Chapter and discussion of facility requirements provides the basis for alternative concepts for developing the airport and meeting the recommended facility requirements and design standards. The facility requirements provide recommended development for the majority of needs for the Taylor Municipal Airport. This Chapter will focus on the feasible and prudent alternatives that the Planning Advisory Committee and the airport sponsor considered for the existing and future aviation needs of the area. Airside development is typically the most critical factor in airport planning as these facilities are the focal point of the airport complex and are the physically dominant features of airport development. However, as determined in the previous Chapter, the majority of airside needs are met at the Taylor Municipal Airport. The only airside change to the existing airport configuration is a relocation of the Runway 21 threshold of 200-feet to provide a Runway Protection Zone (RPZ) clear of residences (Figure 4-1). The Truck shop and parking area currently in the RPZ are to be relocated by the Town of Taylor. A runway length of 7,000 feet is considered adequate for the 20-year planning period. Should an extension be required outside of the 20-year planning period, this extension would most likely take place on the Runway 3 end due to terrain and development off the end of Runway 21.



FIGURE 4-1. RUNWAY 21 THRESHOLD RELOCATION

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## DEVELOPMENT ALTERNATIVES

### AIRSIDE

The primary airside needs of the Taylor Municipal Airport are met. The only immediate airside concerns are the incompatible land uses in the Runway 21 RPZ. Consequently, this Chapter will focus on the landside development of the airport. The Town of Taylor should relocate the Runway 21 threshold 200 feet to remove the residence from the RPZ. The Town also plans to relocate the trucking business and acquire the property in the RPZ. The only additional airside consideration is a potential runway extension to 8,000 feet in the event that the airport is upgraded to a C-II ARC. This extension should take place at the Runway 3 end due to terrain off the end of Runway 21 and the proximity of Runway 21 to the Town of Taylor.

### LANDSIDE

In order to recommend a landside development concept, several important questions need to be answered:

- Should the sponsor protect for an Airport Reference Code upgrade to Category C by setting buildings back and planning for a relocated parallel taxiway at a 300-foot separation?
- What should the Building Restriction Line (BRL) be based on?
- Where should the future fueling facility be located in order to allow for Group II setbacks and aircraft circulation on the apron?
- How can the future apron area be configured to maximize the existing grading?
- How can future corporate hangars be incorporated into the future apron area?
- Should the sponsor consider removal of the existing cottonwood trees south of the apron?
- Where should the future vehicle parking area be located?
- What type of instrument approach visibility minimums will the airport have?

The following landside development alternatives were evaluated and discussed during the Planning Advisory Committee Meeting in September of 2004. The Building Restriction Line (BRL) is an imaginary line typically determined by the height of the tallest structure on the airport and is based on the FAR Part 77 airspace surfaces. For instance, if a 35-foot structure exists or is planned at an airport with a 250-foot primary surface, the structure would have to be set back 495 feet from the runway centerline to clear the transitional surface. The transitional surface starts at the end of the primary surface (250 feet from centerline) and rises at a 7:1 slope. Consequently, a 35-foot structure must be multiplied by 7, which equals 245 feet. The primary surface of 250 feet is then added to the 245 feet to arrive at the determined BRL of 495 feet. However, transitional surface penetrations can be approved by the FAA provided the obstructions are lighted. Because the terminal area at the Taylor Municipal Airport is constrained by downward sloping terrain, the BRL will be based on the Object Free Area (OFA) of the parallel taxiway rather than the FAR Part 77 surfaces. Future hangars will need to be obstruction lighted.

It was determined that the future instrument approach minimums for the airport would be 1-mile visibility. It was also determined that some of the large trees near the terminal area could stay, provided they are cut back so as to not penetrate any FAR Part 77 surfaces. Finally, it was determined that the terminal area portion of the parallel taxiway should stay at a 240-foot runway separation. A number of recommended facilities are included in all three alternatives including the corporate hangar area, the relocation of the fuel facilities and the relocation of the AWOS. (NOTE: A detailed graphical layout of Alternatives A, B and C can be found at the end of this Chapter):

- Alternative A – Set the BRL at 305.5-feet, reconfigure and expand the aircraft parking apron, provide for up to 21 aircraft tiedowns and 28 T-hangars and keep the ARC at B-II.
- Alternative B – Set the BRL at 305.5-feet, reconfigure and expand the aircraft parking apron, relocate the vehicle parking area, provide for up to 25 aircraft tiedowns and 28 T-hangars and keep the ARC at B-II.
- Alternative C – Set the BRL at 400-feet, expand the aircraft and vehicle parking areas, provide for up to 25 aircraft tiedowns and 16 T-hangars and protect for an ARC upgrade to C-II outside of the 20-year planning period.

Alternative A – Set the BRL at 305.5-feet, reconfigure and expand the aircraft parking apron, provide for up to 21 aircraft tiedowns and 28 T-hangars and keep the ARC at B-II.

This alternative involves setting the BRL at 305.5-foot separation from the runway centerline. This BRL is based on the taxiway object free area for Group II aircraft of 131 feet (65.5 feet from the taxiway centerline plus 240 foot runway/taxiway separation). Alternative A also involves realigning and adding aircraft tiedowns for larger aircraft. The vehicle parking lot remains in its existing location in this alternative. A new T-hangar access road will also have to be constructed in this alternative until the existing T-hangars are relocated to the new terminal area.

The major advantages to this alternative are:

- Expands aircraft parking apron and taxilanes to accommodate Group II aircraft.
- Provides area for needed T-hangar expansion with direct access to parallel taxiway.
- Provides controlled access for airport terminal area.
- Provides area for FBO expansion.
- Provides area for future corporate hangar development.
- Relocates fueling area out of taxiway object free area.
- Provides vehicle access to existing T-hangars with minimal grading required.

The major disadvantages to this alternative are:

- Reduces number of aircraft ties downs from 24 to 21.
- A future upgrade in Airport Reference Code would potentially require the relocation of some T-hangars.
- Does not provide direct vehicle parking access to the existing terminal.
- Requires removal of caretaker's residence and air medivac trailer.

Alternative B – Set the BRL at 305.5-feet, reconfigure and expand the aircraft parking apron, relocate the vehicle parking area, provide for up to 25 aircraft tiedowns and 28 T-hangars and keep the ARC at B-II.

This alternative also involves a BRL of 305.5-feet. The aircraft and vehicle parking areas are both expanded in this alternative. The aircraft-parking apron is expanded to the southeast and into the existing vehicle parking area. The vehicle parking area is relocated toward the existing terminal building where the residence to be removed is located. A new T-hangar access road will also have to be constructed in this alternative until the existing T-hangars are relocated to the new terminal area.

The major advantages to this alternative are:

- Expands aircraft parking apron and taxilanes to accommodate Group II aircraft.
- Provides an increase in the number of aircraft tiedowns and accommodates large aircraft parking.
- Provides area for needed T-hangar expansion with direct access to parallel taxiway.
- Provides controlled access for airport terminal area.
- Provides area for FBO expansion.
- Provides area for future corporate hangar development.
- Relocates fueling area out of taxiway object free area.

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- Provides vehicle-parking area adjacent to terminal building.
  - Provides vehicle access to existing T-hangars with minimal grading required.

The major disadvantages to this alternative are:

- A future upgrade in Airport Reference Code would potentially require the relocation of some T-hangars.
- Requires removal of caretaker's residence and air medivac trailer.

*Alternative C – Set the BRL at 400-feet, expand the aircraft and vehicle parking areas, provide for up to 25 aircraft tiedowns and 16 T-hangars and protect for an ARC upgrade to C-II outside of the 20-year planning period.*

This alternative involves a BRL of 400-feet in order to protect for an upgrade in Airport Reference Code outside of the 20-year planning period. This BRL is based on a Category C runway object free area of 800 feet (400 feet on each side of the runway). The future T-hangars are located at the BRL allowing for fewer hangars than in Alternatives A and B. The aircraft and vehicle parking area is identical to Alternative B. The gravel access road to the existing T-hangars will require additional fill in this alternative as it is located approximately 30-feet from the edge of the existing apron area grading.

The major advantages to this alternative are:

- Expands aircraft parking apron and taxilanes to accommodate Group II aircraft.
- Provides an increase in the number of aircraft tiedowns and accommodates large aircraft parking.
- Provides area for needed T-hangar expansion with direct access to parallel taxiway.
- Provides controlled access for airport terminal area.
- Provides area for FBO expansion.
- Provides area for future corporate hangar development.
- Relocates fueling area out of taxiway object free area.
- Provides vehicle-parking area adjacent to terminal building.

The major disadvantages to this alternative are:

- Requires longer taxilanes to access future T-hangars.
- Requires additional earthwork for access road to existing T-hangars.
- Requires removal of caretaker's residence and air medivac trailer.
- Constrains T-hangar development to four unit T-hangars for each taxilane built.

## **NO ACTION ALTERNATIVE**

The Town of Taylor also considered a no action alternative in accordance with FAA Advisory Circular 150-5070-6A. This alternative would involve maintaining the airport in its current configuration and not developing the recommended facilities or correcting the non-standard conditions. However, because the majority of airside needs are met and there is existing demand to base aircraft at the airport, this alternative was not considered feasible or prudent. The airport is also in need of development to correct existing design standard deficiencies. By developing the terminal area and providing lease parcels for hangars, the Town is maximizing the revenue potential of the airport in an effort to become as financially self sustaining as possible.

## **SELECTION OF THE PREFERRED ALTERNATIVE**

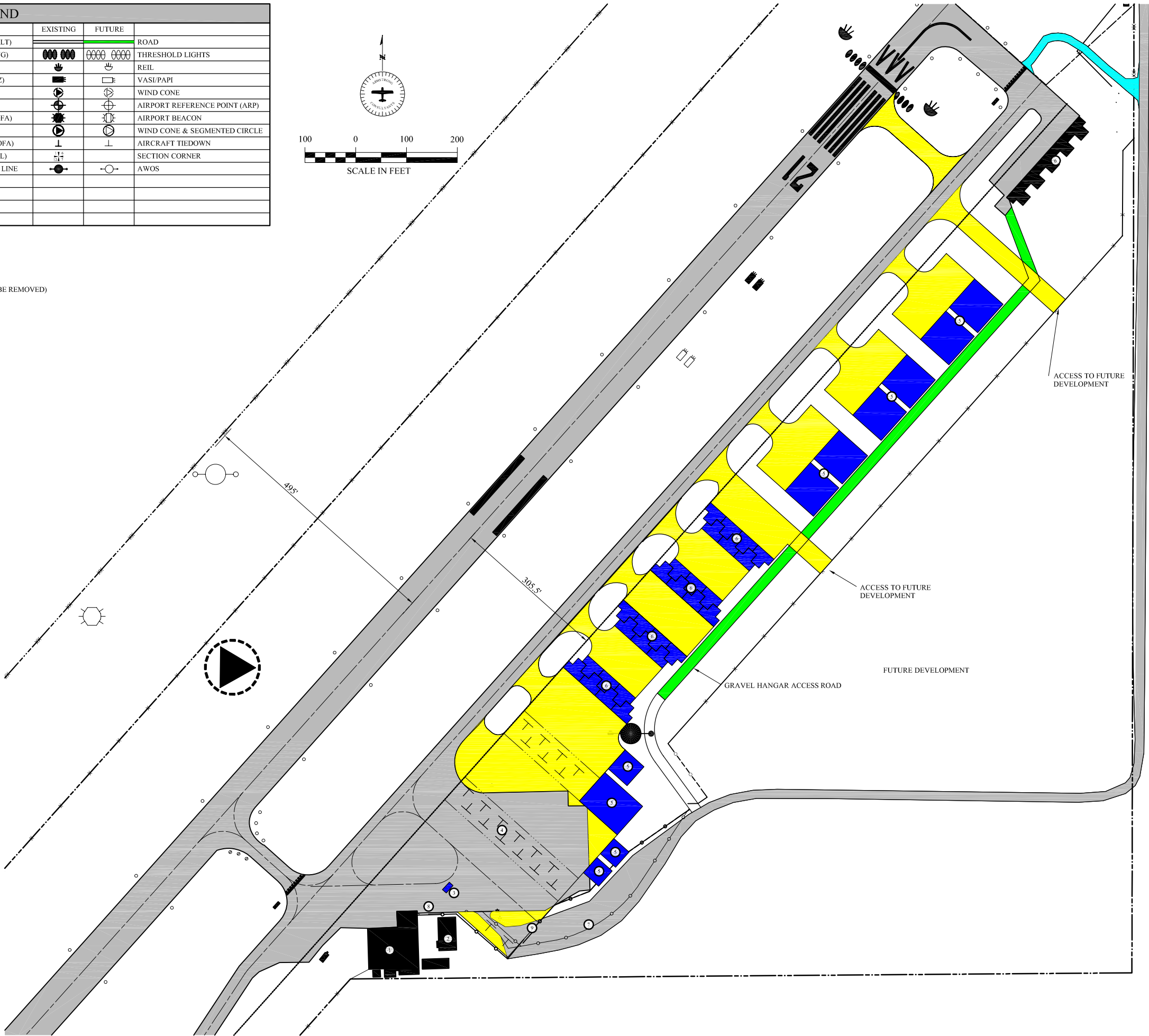
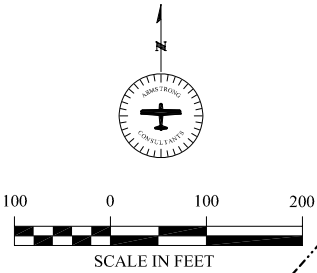
Alternatives A, B and C all involve a similar amount of pavement and include similar facilities. Therefore, cost was not considered a significant factor in comparing alternatives and recommending a preferred alternative. All three alternatives address all FAA safety and design standard deficiencies and provide for the needed apron and T-hangar area expansion. These alternatives were discussed and analyzed during


the September Planning Advisory Committee meeting. Input was received from all members of the Planning Advisory Committee including representatives from the Arizona Aeronautics Division and the Federal Aviation Administration. Upon further review of the advantages and disadvantages of each alternative and based on input from the Planning Advisory Committee, Alternative B is recommended as the preferred alternative.

The primary advantage to Alternative B is that it provides much needed T-hangar area expansion and maximizes the use of the existing grading of the apron area. A development plan including taxilane access to T-hangars will make the airport more attractive to potential based aircraft owners and allow the Town of Taylor to better market its airport and the services provided at the airport. The resulting increase in fuel sales and hangar area leases will also provide a valuable revenue stream for the Town in its efforts to make the airport self-sustaining. This alternative was approved by the Taylor Town Council and will be carried forward into the Airport Layout Plan.

LEGEND					
EXISTING	FUTURE/ULTIMATE	DESCRIPTION	EXISTING	FUTURE	
		AIRFIELD DEVELOPMENT (ASPHALT)			ROAD
		STRUCTURE/FACILITIES (BUILDING)			THRESHOLD LIGHTS
		AIRPORT PROPERTY LINE (APL)			REIL
		RUNWAY PROTECTION ZONE (RPZ)			VASI/PAPI
		RUNWAY SAFETY AREA (RSA)			WIND CONE
		OBSTACLE FREE ZONE (OFZ)			AIRPORT REFERENCE POINT (ARP)
		RUNWAY OBJECT FREE AREA (ROFA)			AIRPORT BEACON
		TAXIWAY SAFETY AREA (TSA)			WIND CONE & SEGMENTED CIRCLE
		TAXIWAY OBJECT FREE AREA (TOFA)			AIRCRAFT TIEDOWN
		BUILDING RESTRICTION LINE (BRL)			SECTION CORNER
		FENCING ON AIRPORT PROPERTY LINE			AWOS
		CONTOURS			
		TO BE REMOVED			
		FUTURE ASPHALT			
		FUTURE STRUCTURE			

- TERMINAL/FBO
- CARETAKER RESIDENCE (TO BE REMOVED)
- FUEL
- APRON
- BOX HANGARS
- T-HANGARS
- AUTO PARKING
- PEDESTRIAN GATE
- AUTO GATE





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TAYLOR MUNICIPAL AIRPORT  
TAYLOR, ARIZONA

AIRPORT LAYOUT PLANS

No.	Revision	Date	By

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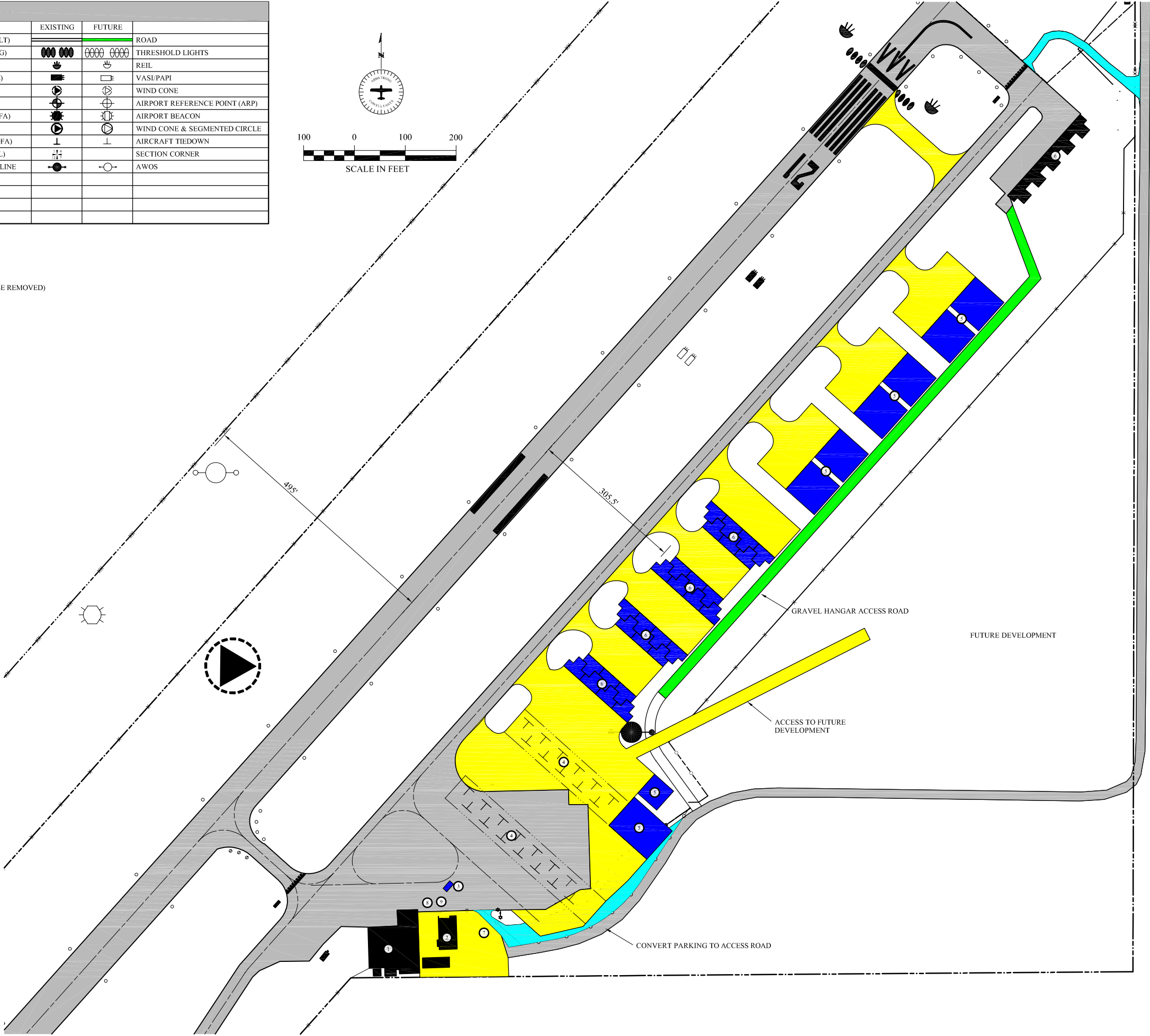
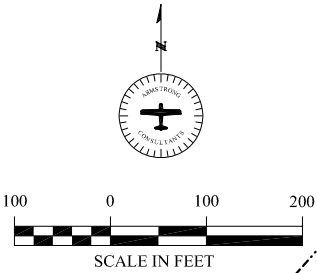
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ALTERNATIVE  
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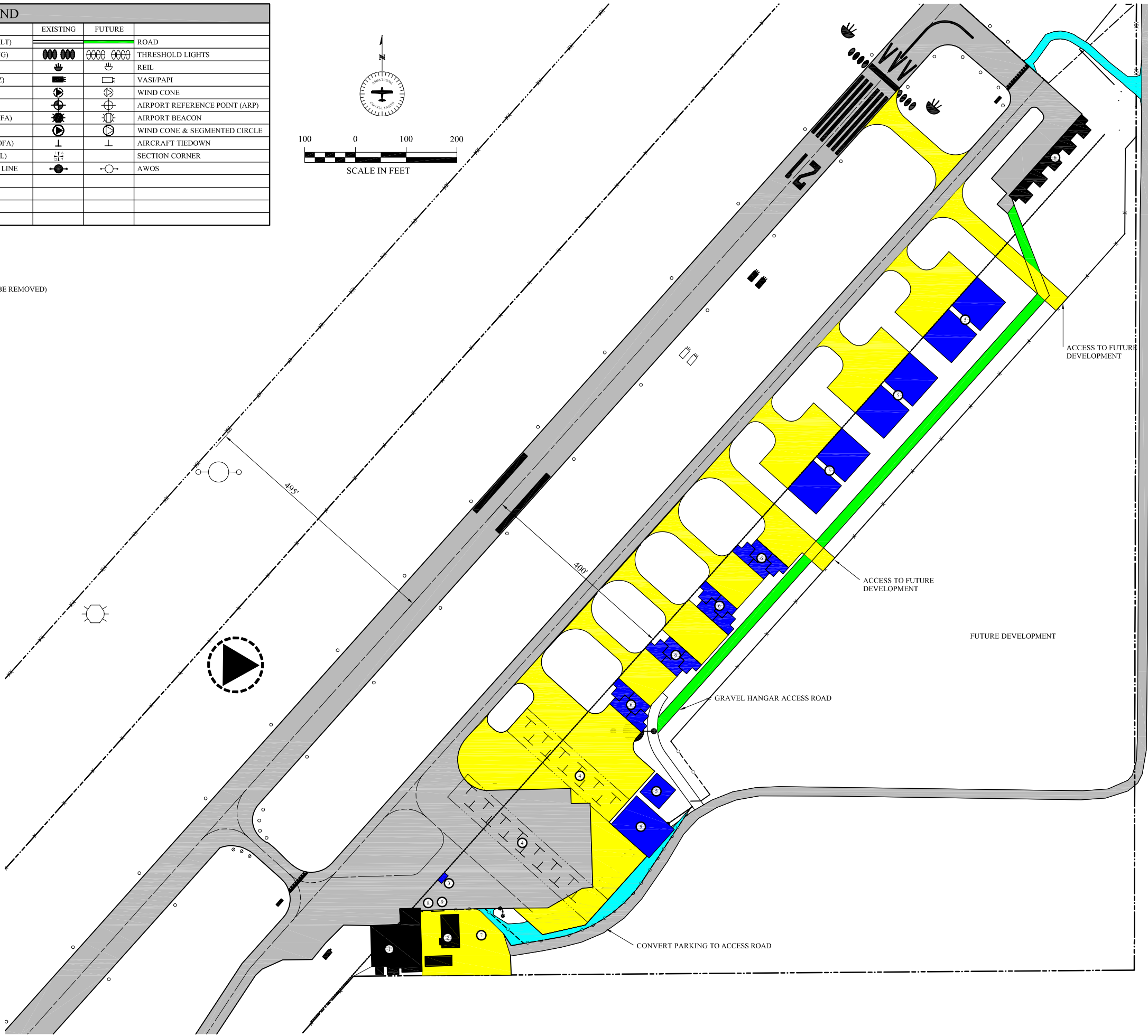
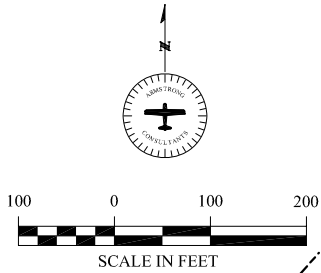
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